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Pathways From Physical Childhood Abuse to Partner Violence in Young Adulthood

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Analyses investigated several competing hypotheses about developmental pathways from childhood physical abuse and early aggression to intimate partner violence (IPV) for young adult males and females at age 24. Potential intervening variables included: adolescent violence (age 15 to 18), negative emotionality at age 21, and quality of one's relationship with an intimate partner at age 24. At the bivariate level, nearly all variables were associated in the expected directions. However, tests of possible intervening variables revealed only a few significant results. For males, a strong direct effect of abuse on later partner violence was maintained in each model. For females, the quality of one's relationship with an intimate partner did appear to mediate the effect of childhood abuse on later violence to a partner, raising the possibility of gender differences in developmental pathways linking abuse to IPV. Implications with regard to prevention are discussed.

Keywords: child abuse; domestic abuse; intimate partner violence; abuse

Intimate partner violence (IPV) is a serious national problem that affects a countless number of families across demographic groups (Magdol, Moffitt, Caspi, & Silva, 1998). Findings from several studies, including the National Family Violence Surveys (NFVS; Straus, 1990), are useful for estimating the scope of the problem. According to the NFVS first conducted in 1975, 160 of every 1000 families experienced partner violence; that number was nearly unchanged when data were last collected in 1985.

The NFVS and other studies have investigated violence perpetrated by males toward their female partners and by females toward their male partners, with noteworthy findings. For example, evidence appears to contradict the commonly held belief that women are routinely victims of violence but rarely perpetrators (Moffitt, Caspi, Rutter, & Silva, 2001; Morse, 1995; Straus & Gelles, 1990). While studies continue to show that females are indeed victimized by their male partners—some by the most serious forms of assault—findings suggest that females also perpetrate some forms of violence at rates proportional to males, or higher (Archer, 2002; Magdol et al., 1998; Moffitt et al., 2001; Straus &

Gelles, 1990). For example, Moffitt and colleagues' (2001) study found that women were equally or more likely than men to report having pushed, grabbed, or shoved their partner, slapped their partner, and kicked, bit, or hit their partner with a fist. Their findings suggest that women perpetrate a range of violent acts, including those serious enough to result in physical injury to their male partners.

Results from other studies suggest a different pattern, that is, while women engage in partner violence, the behaviors they perpetrate are less serious than those of men (Archer, 2002; Morse, 1995). For example, using data from the National Youth Survey (NYS), Morse (1995) found that women directed violence toward adult male partners, but men engaged in more repeated and serious assaults on women. Women were more likely than men to sustain injuries from violence initiated by partners, and to seek medical treatment for their injuries. These findings suggest that although women appear as likely as men to commit some forms of partner violence, women more often than men are physically harmed in violent confrontations.

These are important findings because they provide needed information on the nature and extent of IPV. Equally important are findings that pertain to the reasons why individuals (men and women) perpetrate violence in their relationships. One area of relevant research has investigated the link between violence in adulthood (including IPV) and early violence exposure, primarily from physical child abuse. Evidence here is unequivocal: childhood exposure to family violence predicts adult perpetration of violence (Doumas, Margolin, & John, 1994; Ehrensaft et al., 2003; Gelles, 1980; Herrenkohl, Herrenkohl, & Toedter, 1983; Magdol et al., 1998; Straus & Gelles, 1990; Widom, 1989a, 1989b).

In their 20-year prospective study, Ehrensaft and colleagues (2003) investigated the link between childhood physical abuse and later IPV. They found that abuse was highly predictive of later perpetration of IPV, as well as injury to victims. In that study, earlier (youth) conduct problems also increased risk for IPV quite notably, suggesting that another factor to consider with regard to the etiology of IPV is an individual's earlier violent behavior. Evidence on both risk factors (child abuse and early aggression/conduct problems) has emerged from the above research, as well as other well-designed studies (Capaldi & Clark, 1998; Farrington, 1994; Magdol et al., 1998; Moffitt et al., 2001).

What is less clear from existing research is why risk factors, such as physical child abuse, lead to later perpetration of IPV. One hypothesis is that adult perpetrators acquire a propensity to use violence through their earlier victimization, that is, they re-enact learned behaviors in a manner consistent with the ways they were previously victimized by a parent or surrogate caregiver (Ehrensaft et al., 2003). Another hypothesis is that children who are exposed to family violence fail to develop skills to regulate emotions and capacity to form lasting and rewarding relationships with others, including their intimate partners, which, in turn, increase risk for IPV (Moffitt et al., 2001; Wolfe, 1999). On the latter issue, Moffitt and associates (2001) found that "negative emotionality" (analogous to poor emotion regulation) was a significant predictor of IPV in young adult couples, although they did not attribute this process to child abuse per se. Negative emotionality in their study was defined as an individual's low threshold for anxiety and anger, a tendency to break down under stress, and a tendency to perceive the world as threatening (Moffitt, Krueger, Caspi, & Fagan, 2000, p. 209).

Unfortunately, while viable explanations for the link between abuse and IPV exist, evidence to support any one potential cause (pathway) is sparse. Also problematic is that research has not adequately investigated whether the same potential explanation holds for both males and females, perhaps because little attention has been paid to violence among

females. Further complicating the issue is that studies that have investigated gender differences in IPV have produced inconsistent findings (Magdol et al., 1997; Magdol et al., 1998). For example, Magdol and colleagues' (1998) finding that the relation between adverse family events—which included severe [abusive] discipline by an adult caregiver—and IPV was stronger for females differs from earlier findings that suggest abused males are at higher risk for violence (Doumas et al., 1994).

The current study seeks to contribute to knowledge on developmental pathways leading to IPV and gender differences. Specifically, we test several competing models for the link between physical child abuse (accounting for early aggression) and IPV in early adulthood. Analyses use longitudinal data from a panel study that contains near equal numbers of males, followed from age 10 to 24.

Research Hypotheses

We investigated three competing hypotheses for the link between physical childhood abuse and IPV. Childhood aggression is included in all models as a covariate and exogenous variable. Hypotheses are: H1: Physical child abuse increases risk for IPV by promoting violent behavior in adolescence that carries through to early adulthood. H2: Physical child abuse increases risk for partner violence by adversely affecting an individual's ability to regulate emotions (labeled "negative emotionality"), which increases risk for IPV. H3: Physical child abuse adversely affects the quality of one's later relationships (i.e., diminishes one's ability to form a strong, committed relationship with an intimate partner), which sets the stage for IPV.

METHOD

Participants

Data are from the Seattle Social Development Project (SSDP), a longitudinal study of youth development and behavior that has followed a panel of children since they entered the fifth grade in 1985, at age 10 (Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996; Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999). Participants were recruited from 18 Seattle public elementary schools serving predominantly high-crime neighborhoods. From a population of 1053 students, 808 (77%) consented to take part in the longitudinal study. Of the original study participants, 396 (49%) were female, 372 (46%) were European American, 195 (24%) were African American, 170 (21%) were Asian American, and 72 (9%) were individuals from other race or ethnic groups. Many participants were from low-income households. Forty-six percent of parents reported yearly incomes under $20,000 in 1985. Fifty-two percent of children participated in the school free lunch program at some point between the fifth and seventh grades. Forty-two percent of children reported living with a single parent in 1985. For this study, we used data only for individuals who reported current involvement in an intimate relationship, or involvement in a relationship in the past year. This reduced the sample for analyses to 644 participants. The analysis sample included 330 (51%) females, 300 (47%) European Americans, 155 (24%) African Americans, 133 (21%) Asian Americans, and 56 (9%) individuals from other race or ethnic groups.

Assessments and Data Sources

Child participants and their parents took part in annual assessments through 1991. Children were assessed again in 1993 at age 18, in 1996 at age 21, and once again in 1999 at age 24. Teachers completed annual assessments through 1989. Teachers reported on children's behavior using the Child Behavior Checklist (Achenbach & Edelbrock, 1983).

Data used in the current study are from assessments when youths were 10, 15, 16, 18, 21, and 24 years of age. At age 10, teachers and parents rated the behavior of children using the Child Behavior Checklist [CBC] (Achenbach & Edelbrock, 1983). The CBC ratings, along with children's self-reports of fighting and assault, were used here to establish a multisource measure of childhood aggression. Physical child abuse was assessed through retrospective reporting by participants at age 24 using Bernstein and colleagues' Childhood Trauma Questionnaire (2003). At ages 15 to 18, youth reported on their fighting and assaultive behaviors. These data were used here to form a composite measure of violence during adolescence. At age 21, individuals reported on stress and anger (negative emotionality) using Buss and Plomin's (1984) measure of Emotionality, Activity, and Sociability (EAS). At age 24, individuals reported on the quality of their intimate relationships and use of physical violence toward their partners. Items used to define partner violence are from the Conflict Tactics Scale [CTS] (Straus, 1990). The response format for these CTS items was modified slightly from the original format (response categories are "never," "rarely," "sometimes," "often," and "very often").

Participation rates across all waves in the SSDP study have consistently been high; from ages 15 to 18, from 94% to 97% of the original cohort of 808 was re-assessed. At ages 21 and 24, 95% of the cohort was re-assessed.

Measures

Measures in the study span six waves of data collected from one or more sources. Descriptions of the measures are provided below. Additional information on the measures can be obtained from the first author.

Physical Child Abuse. Data on physical child abuse were collected retrospectively at age 24. Participants reported ("yes" or "no") whether, before age 10, they were "hit so hard by someone in the family they had to see a doctor or go to the hospital," "were hit so hard that it left bruises or marks," "were punished with a belt, board, cord, or other hard object," "were hit or beaten so badly it was noticed by someone like a teacher," and "believe they were physically abused." Responses were summed to derive the total number of items to which each participant responded affirmatively. In total, 294 (47%) of all individuals in the analysis sample (those who were partnered at age 24) reported having been physically abused before age 10; of these, most (94%) were "punished with a belt, board, cord, or other hard object."[1] One hundred seventeen (40%) of those who reported abuse responded affirmatively on two or more scale items. One hundred thirty-three (45%) of those who reported abuse of any kind are females. The standardized scale reliability for the five items is .78.

Childhood Aggression at Age 10. We included in the analysis a measure of childhood aggression at age 10 to capture information on early antisocial behavior and its relation to childhood abuse, as well as later IPV. The measure combined data from teachers, parents, and children. Data from each source were used in the analysis as separate indicators of a latent construct.

Data from teachers were from the Child Behavior Checklist (Achenbach & Edelbrock, 1983). Teachers reported whether the following were "not true," "true," or "very true" of each child: "argues a lot," "is cruel," "bullies or is mean to others," "doesn't get along with other kids," "gets in many fights," "physically attacks people," "has explosive or unpredictable behavior," "swears or uses obscene language," "has temper tantrums or has a hot temper," "threatens people," "is defiant or talks back to staff." Responses to all 10 items were log-transformed, standardized, and then averaged. The standardized scale reliability for the 10 items is .94.

Parents responded ("not true," "sometimes true," and "often true") to two items on their children's behavior at age 10: "gets in many fights" and "attacks people." These two items, which are moderately correlated ($r = .44$, $p < .001$), were log-transformed, standardized, and averaged.

In addition, children themselves reported on whether they had ever ("yes" or "no") "picked a fight," "hit a teacher," or "thrown objects at people." These items also were log-transformed, standardized, and averaged. The standardized scale reliability for these three items is .48.

Adolescent Violence at Age 15 to 18. We included in the analysis a measure of adolescent violence at age 15 to 18 to test the hypothesis that childhood abuse predicts IPV through an earlier form of violence. Youths reported on fighting ("pick fights") and assaultive behavior ("hit someone with the intent of hurting") at each age. These two items (past year frequencies) were log-transformed, standardized, and then averaged (by behavior) across ages, forming two indicators of a latent construct. Within each age period, the two behaviors were moderately correlated ($r = .47$ to $.56$, $p < .001$).

Negative Emotionality at Age 21. Negative emotionality at age 21 used items from two subscales ("distress" and "anger") of Buss and Plomin's (1984) EAS instrument; each subscale contained four items. Individuals reported ("YES," "yes," "no," or "NO") on whether they: "frequently get distressed," "often feel frustrated," "feel troubled and fretful by everyday events," "get emotionally upset easily" (Distress; scale reliability is .77); and "let people know right away when displeased," "are known as hot-blooded and quick tempered," "are annoyed by many things," and "takes a lot to make me mad" (reversed) (Anger; scale reliability is .52). Two items from within each subscale were combined, yielding four indicators that were used to form a latent construct (Kishton & Widaman, 1994; Little, Cunningham, Shahar, & Widaman, 2002).

Relationship Quality at Age 24. Relationship quality at age 24 addressed the strength of attachment to one's partner: "share thoughts and feelings with partner," "want to be like partner," "closeness of relationship to partner" (scale reliability is .73); commitment to a partner: "stick by partner always"; and rewards for involvement with a partner: "enjoy spending time with partner," "receive support and encouragement from partner," "partner recognizes accomplishments," "partner helps when needed," and "warmth and affection from partner" (scale reliability is .86). Response options for each item were "YES," "yes," "no," "NO" or "very little," "some," "pretty much," "a lot." Each subscale was used as an indicator of a latent construct in the analysis.

Partner Violence at Age 24. The measure of partner violence at age 24 combined three items that represent different violent behaviors. Individuals reported on the frequency ("never," "rarely," "sometimes," "often," and "very often") with which they had: "pushed, grabbed, slapped, or shoved a partner," "threatened to hit or throw something at a partner," or "kicked, bit, or punched a partner." Each item was log-transformed, standardized, and used as an indicator of a latent construct. The standardized

scale reliability for the three items is .81. Analysis of the data showed that approximately 19% of the individuals in the analysis sample had used one or more violent behaviors.

Table 1 lists the three indicators of partner violence used in the study and percentages of male and female respondents who reported having engaged in each behavior on a regular ("sometimes") to very regular ("very often") basis in the past year. As shown, for each indicator, a greater proportion of women reported perpetration of partner violence than did men in the analysis sample.

Analysis

Multiple Group Structural Equation Models. A multiple group structural equation modeling approach (MGSEM) was used to examine each hypothesis, and to compare pathways from childhood abuse to IPV for males and females. The analysis was conducted in two stages: First, a confirmatory factor analysis (CFA) was run for the two groups—males and females—to examine the measurement of each construct and interrelations among the variables. All variables that would appear in hypothesis testing were included in the CFA. Next, separate MGSEM models were tested for each of the three hypotheses.

In each model, childhood abuse and aggression were entered as correlated, exogenous variables and IPV as a single latent variable outcome; one of the intervening variables—adolescent violence, negative emotionality, and relationship quality—then was added in separate models to test its strength as an intervening variable. Evidence of mediation in these models was shown by significant paths to and from the intervening variable, as well as by reduction in the direct effects of the exogenous variables on the outcome. Strong mediation effects provided evidence of a pathway from abuse to partner violence consistent with the tested hypothesis.

The conceptual model for hypothesis testing is shown in Figure 1. The model illustrates the pattern of relations among the exogenous, intervening, and outcome variables tested for each of the three competing explanations.

Overall model fit in each case was examined using the Comparative Fit Index [CFI] (Bentler, 1992), the Tucker-Lewis Index [TLI] (Tucker & Lewis, 1973), and the root mean square error of approximation (RMSEA). A strong fit is obtained when the CFI or TLI approaches a value of .95 or greater. A RMSEA value around or below .05 indicates a close model fit (Browne & Cudeck, 1993).

Treatment of Missing Data

Missing data in longitudinal research are common (Graham, Hofer, Donaldson, MacKinnon, & Schafer, 1997; Schafer & Graham, 2002). Over the course of a multiwave study, responses may be lost due to a number of factors, including sample attrition. In the

TABLE 1. Item Percentages: Men and Women Who Reported Partner Violence ('Sometimes" to "Very Often") at Age 24

	Male % (N = 288)[a]	Female % (N = 313)[a]
1. Pushed, grabbed, shoved partner	1.1	6.2
2. Hit or throw something at partner	1.7	6.7
3. Kicked, bit, punched partner	0.0	3.0

[a] These are average N's for the analysis sample; numbers differed slightly across items due to missing data.

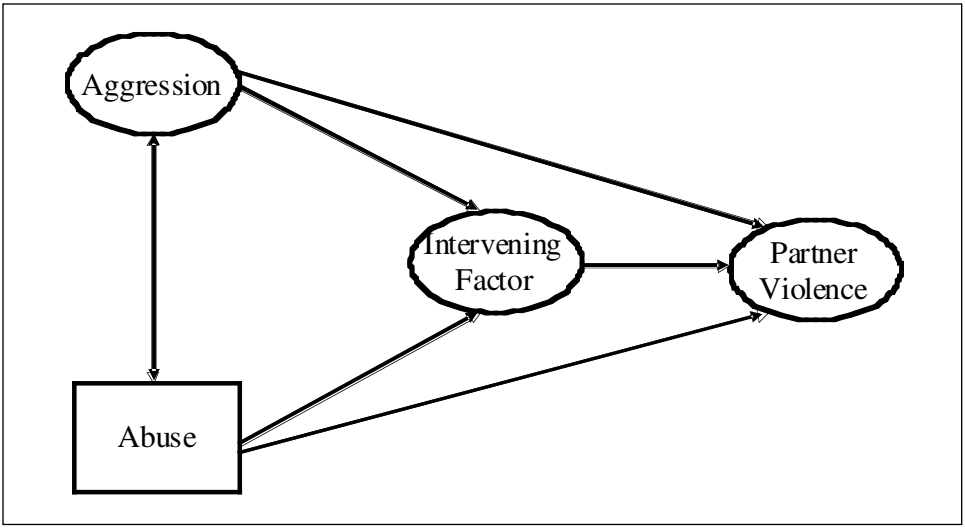

Figure 1. Conceptual model.

SSDP, sample attrition has been kept low. Nonetheless, in this study, we used the raw maximum-likelihood estimation (also known as full information maximum likelihood estimation) in AMOS (Arbuckle, 1995) to handle missing data. This procedure has been shown to produce unbiased parameter estimates and reasonable standard errors even when large percentages of data are missing (Graham et al., 1997; Schafer & Graham, 2002).

RESULTS

Multiple Group Confirmatory Factor Analysis

A multiple group confirmatory factor analysis (CFA) was run for males and females to examine the measurement of relevant variables. Consistency in model fit was examined using overall fit statistics. Results of the fully unconstrained CFA showed an acceptable fit to the data (χ^2 (180) = 337.64, CFI = .94; TLI = .91, RMSEA = .04). Constraining the factor loadings to be equal across the two groups (males and females), however, resulted in a significant change in the model chi-square ($\Delta\ \chi^2(10) = 50.90$), which suggested that factor loadings differed by gender in some cases. Yet, other measures of fit, which are less directly influenced by trivial differences across gender groups in the model, did not change appreciably when the factor loadings were held constant (for the constrained model: CFI = .92, TLI = .89, and RMSEA = .04). Therefore, we proceeded with the planned analyses; in these analyses, all factor loadings were constrained across the groups to insure full comparability of the latent variables.

Table 2 includes the intercorrelations among the variables in the CFA for males (top row) and females (bottom row). As shown, correlations among the factors for males and females are consistently in the same direction, but the strength of association between variable pairings appears to differ in some cases. To examine whether these differences are statistically significant, we re-ran the CFA model several times, in each case constraining a single covariance to be equal across the two groups. A significant change in the model χ^2 with the added constraint would provide evidence of a gender difference beyond that which could result from chance alone. Formal testing of the covariances in the CFA resulted in no significant differences.

TABLE 2. Factor Intercorrelations (CFA)

	Gender	2	3	4	5	6
1. Aggression at age 10	M	.18*	.47**	.25*	-.22*	.28**
	F	.33**	.86**	.49**	-.12	.32**
2. Abuse before age 10	M		.18**	.07	-.10+	.27*
	F		.20**	.19**	-.21**	.11+
3. Adolescent violence at ages 15 to 18	M			.22**	-.08	.20*
	F			.32**	-.07	.24**
4. Negative emotionality at age 21	M				-.18*	.09
	F				-.26**	.18*
5. Relationship quality at age 24	M					-.15*
	F					-.33*
6. Partner violence at age 24	M					—
	F					—

χ^2 = 387.73, *df* = 190; CFI = .92; TLI = .89; RMSEA = .04.
*p < .05. **p < .01. +p < .10.

Multiple Group Structural Equation Models (MGSEM)

As a next step, we ran structural model tests to address the three hypotheses about pathways from abuse to later partner violence. This allowed for further analysis of possible gender differences in patterns from abuse to partner violence at age 24. In all cases, factor loadings for each latent variable were held constant across groups for comparability.

For each hypothesis, we tested for possible gender differences in the structural paths of the model. These tests examined the change in chi-square ($\Delta \chi^2$) from a model with all paths unconstrained to one in which a single path was constrained.[2]

In the paragraphs that follow, we report the overall fit of each model (for each corresponding hypothesis) and the gender differences in relations among the variables. Analysis results are summarized under headings for each hypothesis.

H1: Physical Child Abuse Increases Risk for IPV by Promoting Violent Behavior in Adolescence That Carries Through to Early Adulthood (Figure 2). In Figure 2, adolescent violence is modeled as an intervening variable linking childhood abuse and IPV. Childhood aggression also is modeled as an exogenous variable, correlated with abuse in the model. While at the bivariate level, childhood abuse was significantly correlated with adolescent violence for both males and females (Table 2), and while adolescent violence was significantly correlated with partner violence at age 24, a pathway from abuse through adolescent violence to partner violence was not found. In this model, aggression at age 10 was strongly predictive of adolescent violence for both males and females; for neither gender was childhood aggression directly predictive of IPV in the model. For males, a strong direct effect of childhood abuse on partner violence was maintained, suggesting that other variables are needed to explain this link. Overall model fit was adequate (χ^2 (49) = 104.78, CFI = .94; TLI = .90; RMSEA = .04), indicating that while individual paths in the model are nonsignificant, the model overall was consistent with patterns in the data.

Subsequent tests for gender differences in the individual paths that linked variables in the model revealed no statistically significant findings.

H2: Physical Child Abuse Increases Risk for Partner Violence by Adversely Affecting an Individual's Ability to Regulate Emotions (Labeled "Negative Emotionality"), Which Increases Risk for IPV (Figure 3). The model in Figure 3 tests a pathway from abuse to IPV through negative emotionality at age 21. Given that, at the bivariate level, abuse was

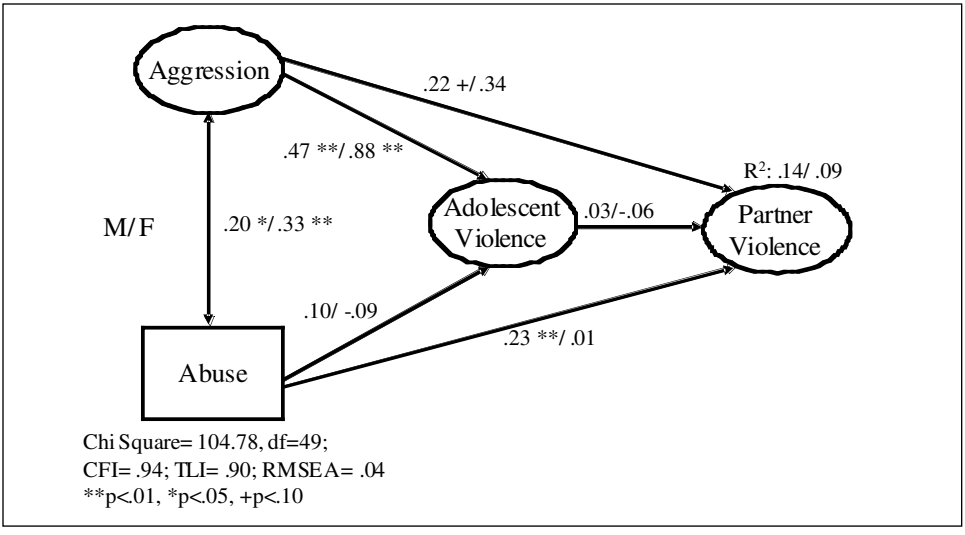

Figure 2. Model with adolescent violence.

not significantly related to negative emotionality for males (and negative emotionality was more strongly correlated with IPV for females), we expected this model to have stronger explanatory power for female perpetrators. However, for neither gender did a pathway from abuse through negative emotionality appear. In the model, childhood aggression significantly predicted negative emotionality for both genders. And, for males, a direct effect of abuse on partner violence was once again revealed. Overall model fit was less adequate: (χ^2 (85) = 208.18, CFI = .89; TLI = .82; RMSEA = .05).

Subsequent tests for gender differences in the individual paths that linked variables in the model revealed no statistically significant findings.

H3: Physical Child Abuse Adversely Affects the Quality of One's Later Relationships (i.e., Diminishes One's Ability to Form a Strong, Committed Relationship With an Intimate Partner), Which Sets the Stage for IPV (Figure 4). A final model (Figure 4) examined relationship quality at age 24 as an intervening variable. For females, a strong association was shown for childhood abuse and relationship quality, and for relationship quality and IPV at age 24. For males, however, no pathway through relationship quality was found; instead, childhood abuse continued to have a strong direct effect on the outcome. Childhood aggression, in this case, maintained a direct effect on IPV for both genders. Fit statistics for this model indicate an adequate fit to the data (χ^2 (66) = 128.98, CFI = .96; TLI = .94; RMSEA = .04).

Follow-up tests for gender differences in individual paths showed that the path from abuse to IPV was significantly stronger for males ($\Delta \chi^2(1) = 4.16$).

DISCUSSION

Several studies have investigated predictors of IPV, but few have examined developmental pathways and gender differences. In this study, bivariate results revealed significant predictors of partner violence for both genders. Formal testing of the variation in the strength of these predictors provided no additional evidence of gender differences.

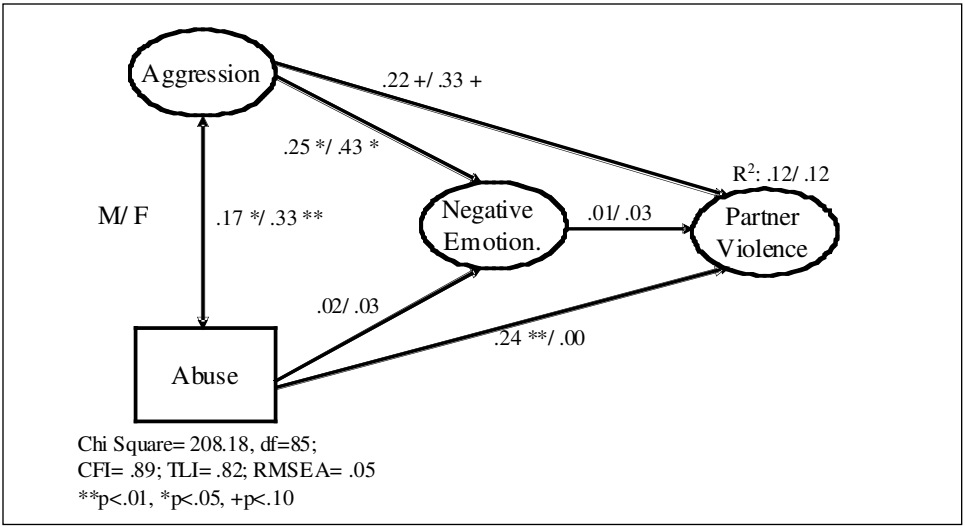

Figure 3. Model with negative emotionality at age 21.

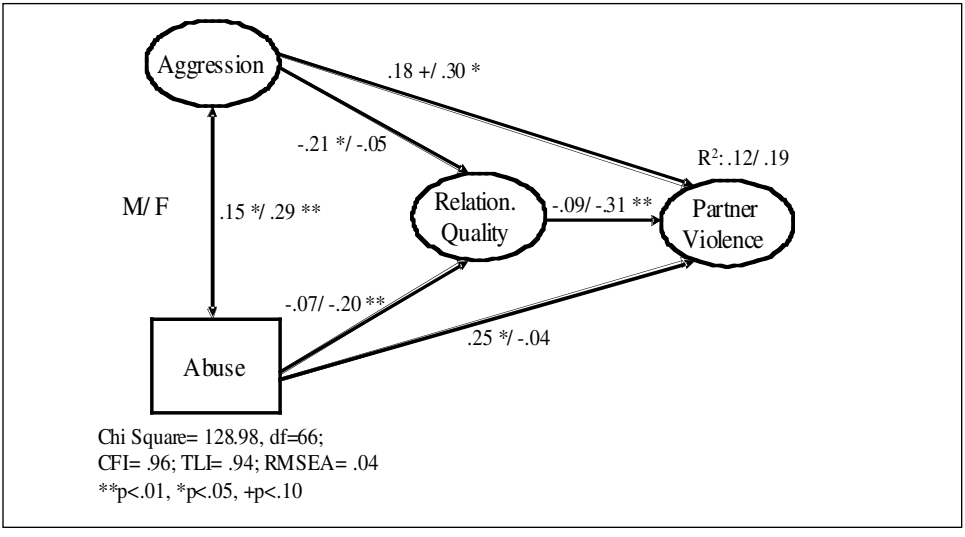

Figure 4. Model with relationship quality at age 24.

Further model testing examined three competing hypotheses for the link between childhood abuse and later IPV. Perhaps most remarkable is the lack of significant mediation effects shown in these models. Although hypotheses tested in analyses were derived largely from explanations given in the research literature, little evidence for any one hypothesis was generated here.

In a final model, results did show the quality of one's intimate relationship to be an intervening variable for females. In contrast, childhood abuse maintained a direct effect on IPV for males. One explanation is that men and women differ in their motivations to use violence in their relationships; whereas violence in men emerges from earlier experiences that threaten feelings of control and dominance, violence in women emerges more from current relationship circumstances (Magdol et al., 1997). Further examination of this

issue is warranted in light of implications that might follow for preventive intervention. For example, it may be that methods of family counseling seeking to lessen violence by enhancing relational ties between an abuser and victim would be more appropriate when a female partner is the identified perpetrator.

In any respect, the fact that childhood abuse remained a strong, direct predictor of IPV for males suggests that variables other than those we tested in analyses are needed to explain this developmental progression. The need for further model testing also is evidenced by the relatively small proportion of variance in IPV explained in each analysis for both genders (range of 9%-19%). Analyses should examine how predictors interact and simultaneously predict IPV, which requires moving beyond bivariate comparisons that are common in existing research.

Limitations of the Study

This study used retrospective reports of child abuse based on assessments when participants were 24 years of age. The use of retrospective measures of child maltreatment has been questioned in the research literature (Herrenkohl, Huang, Tajima, & Whitney, 2003; Tajima, Herrenkohl, Huang, & Whitney, in press; Widom & Morris, 1997; Widom & Shepard, 1996; Widom, Weiler, & Cottler, 1999). Our own research on this topic has shown some differences in the prediction of outcomes when prospective and retrospective measures of abuse are used, but notable agreement in findings overall (Herrenkohl et al., 2003; Tajima et al., in press). The degree to which results of this study are negatively influenced by the use of a retrospective measure of abuse is unknown; therefore, replication of these findings using prospective data is needed.

Another potential limitation is the use of contemporaneous measures of relationship quality and IPV in a model designed to test for mediation. While the model examined in the study is consistent with the hypothesized pattern in the data, the lack of temporal ordering between the two variables makes it impossible to draw a definitive conclusion about which variable precedes the other in a developmental sequence.

A final limitation of the study is the relatively small number of males who, at age 24, reported having engaged in partner violence on a frequent basis. Low numbers at higher points on the scale could have influenced the power of analyses to detect predictor effects. The fact that childhood abuse was so consistently predictive of partner violence for males despite the small number of frequent perpetrators, however, suggests that the relation between these two variables is quite robust.

CONCLUSIONS

This study offers a beginning conceptualization of developmental pathways that link childhood abuse to IPV in adulthood. Findings here suggest additional hypotheses on the transmission of violence are needed to arrive at conclusions that can guide interventions with abuse victims. Nonetheless, there is reason to believe that risk for some types of partner violence in early adulthood could be lessened by primary prevention to reduce the incidence of childhood physical abuse. While abuse was, in this case, less directly predictive of IPV for females, it did appear to increase risk for later perpetration, possibly by diminishing the quality of later intimate relationships.

NOTES

1. Of those reporting abuse, 11% had been "hit so hard by someone in the family they had to see a doctor or go to the hospital," 36% had been "hit so hard that it left bruises or marks," 12% had been "hit or beaten so badly it was noticed by someone like a teacher," and 28% believe they were physically abused.

2. Tests of gender differences in structural paths used the $\Delta \chi^2$ from a model with structural paths unconstrained to a model with a single path coefficient constrained across the two groups; a significant $\Delta \chi^2$ suggests the association between two variables differs by gender.

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